RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1: RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 focus on the concept of Time and Work. This exercise helps students understand how to calculate the time required to complete tasks based on different work rates.

It covers problems where students need to determine the time taken by individuals or groups to finish a job and how working together affects the overall time. The solutions provide clear, step-by-step explanations helping students grasp the relationship between time, work and efficiency. By working through these exercises students enhance their ability to solve real-life problems related to time management and work efficiency.

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 Overview

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 focuses on foundational problems in the concept of Time and Work. This exercise introduces students to calculating how long it will take to complete tasks given different work rates and conditions. It includes problems where students must determine the time required for individuals or groups to finish a task, either working alone or together.

By providing detailed, step-by-step solutions this exercise helps students develop a strong grasp of how time and work are interrelated enhancing their problem-solving skills in real-world scenarios.

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 PDF

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 PDF is available below. This document provides comprehensive solutions to the exercise problems, which cover various aspects of Time and Work. It includes step-by-step explanations to help students understand how to calculate work rates, determine time required for task completion, and solve related problems effectively. Access the PDF to enhance your understanding and get detailed guidance on tackling these exercises.

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 PDF

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 (Ex 13A)

RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1 are available below. This resource provide detailed solutions and explanations for problems related to Direct and Inverse Proportions.

(Question 1) Rajan can do piece of work in 24 days while Amit can do it in 30 days. In how many days can they complete it, if they work together?

Solution

Rajan's one day's work = $\frac{1}{24}$

Amit's one day's work = $\frac{1}{30}$

Both's one day's work = $\frac{1}{24} + \frac{1}{30}$

$= \frac{5+4}{120} = \frac{9}{120}$ [LCM of 24,30=120]

$= \frac{3}{40}$

∴ Both can do the work in = $\frac{40}{3}$ days

$= 13\frac{1}{3}$ days

(Question 2) Ravi can do a piece of work in 15 hours while Raman can do it in 12 hours. How long will both take to do it, working together?

Solution

Ravi's one hours work = $\frac{1}{15}$

Raman's one hour's work = $\frac{1}{12}$

Both's one hour's work = $\frac{1}{15} + \frac{1}{12}$

$= \frac{4+5}{60} = \frac{9}{60} = \frac{3}{20}$

∴ BOth can finish the work in

$\frac{20}{3} = 6\frac{2}{3}$ hours or 6 hours, 40 minutes.

(Question 3) A and B, working together can finish a piece of work in 6 days, while A alone can do it in 9 days. How much time will B alone take to finish it?

Solution:

We know that,
Number of days A required to do a piece of work =9 days
Let us consider number of days B required to do piece of work =X days
Number of days required by A and B together to do a piece of work =6 days

∴ We can calculate, work done by A in 1 day =1/9
And the work done by B in 1 day =1/x
Work done by both A and B in a day =1/6
Work done by both A and B together in 1 day =1/9+1/x=(x+9)/9x

⇒(x+9)/9x=1/6

⇒6x+54=9x

⇒3x=54

⇒x=54/3

⇒x=18

∴B can do the work in 18 days

(Question 4) Two motor mechanics, Raju and Siraj, working together can overhaul a scooter in 6 hours. Raju alone can do the job in 15 hours. In how many hours can Siraj alone do it?

Solution:

We know that,

Number of hours raju requires to do the job =15 hours

Let us consider the number of scooters siraj overhauls in an hour to be x, then

Work done by both raju and sriraj in 1 hour =1/15+1/x=(x+15)/15x

(x+15/15x)=1/6 [As they both can finish the job in 6 hours]
6x+90=15x
9x=90
x=90/9

x=10

∴ Siraj can do the work in 10 hours.

(Question 5) A, B and C can do a piece of work in 10 days, 12 days and 15 days respectively. How long will they take to finish it if they work together?

Solution:

We know that,

Number of days A requires to do piece of work =10 days
Number of days B requires to do the piece of work =12 days

Number of days C requires to do the piece of work =15 days

∴ We can calculate, work done by A in 1 day=1/10

Work done by B in 1 day =1/12

Work done by C in 1 day =1/15

Now, work done by A,B and C together in 1 day =1/10+1/12+1/15=15/60=1/4

∴ They can do work together in 4 days.

(Question 6) A can do a piece of work in 24 hours while B alone can do it in 16 hours. If A, B and C working together can finish it in 8 hours, in how many hours can C alone finish the work?

Solution

A's 1 hour's work $= \frac{1}{24}$

B's 1 hour's work $= \frac{1}{16}$

A,B and C's 1 hour's work $= \frac{1}{8}$

∴ C's 1 hours work $= \frac{1}{8} - (\frac{1}{16} + \frac{1}{24})$

$= \frac{6-(2+3)}{48} = \frac{6-5}{48} = \frac{1}{48}$

∴ C can finish the work in =48 hours.

(Question 7) A, B and C working together can finish a piece of work in 8 hours. A alone can do it in 20 hours and B alone can do it in 24 hours. In how many hours will C alone do the same work?

Solution

A, B and C's 1 hour's work = $\frac{1}{8}$

A's 1 hour's work = $\frac{1}{20}$

B's 1 hour's work = $\frac{1}{24}$

∴ C's 1 hours work = $\frac{1}{8} - \left(\frac{1}{20} + \frac{1}{24}\right)$

$= \frac{15-(6+5)}{120} = \frac{15-11}{120}$

$= \frac{4}{120} = \frac{1}{30}$

∴ C alone finish the work in = 30 hours.

(Question 8) A and B can finish a piece of work in 16 days and 12 days respectively. A started the work and worked at it for 2 days. He was then joined by B. Find the total time taken to finish the work.

Solution:

We know that,

Number of days A required to do piece of work = 16 days

Number of days B required to do piece of work = 12 days

∴ We can calculate, work done by A in 1 day = 1/16

Work done by B in 1 day = 1/12

A alone works for 2 days so, the amount of work completed by A in 2 days = 2×1/16 = 1/8

∴ work left = 1−1/8 = 7/8

Work done by A,B together in a one day = 1/16+1/12 = 7/48

∴ they can complete the work together in 48/7 days

But only 7/8th of work is to be completed by both A and B

∴ time required to complete 7/8th work together by A and B = 7/8×48/7 = 6 days

Time taken to finish the work = 6+2 = 8 days (2 is added because 1/8 work is done by A alone)

∴ Total time taken to complete the work = 8 days.

(Question 9) A can do a piece of work in 14 days and B can do it in 21 days. They began together and worked at it for 6 days. Then, A fell ill and B had to complete the remaining work alone. In how many days was the work completed?

Solution:

A can do a piece of work in 14 days.

Therefore A's one days work will be 114

B can do a piece of work in 21 days.

Therefore B's one days work will be 121

If A and B together work then their one days work will be

⇒1A+1B=114+121

⇒1A+1B=3+242 taking LCM

⇒1A+1B=542

A and B worked for 6 days

Therefore their 6 days work is 542×6=57

Amount of work completed is 57

Work to be completed is 1−57=7−57=27

Therefore 27 work has to be completed by B only.

=27×21

=2×3=6 days

Work will be completed in 6 days

(Question 10) A can do 2/3 of a certain work in 16 days and B can do ¼ of the same work in 3 days. In how many days can both finish the work, working together?

A can do 2/3 of a certain work in 16 days
Let no of days to do the whole work be x.
Then 2/3 x =16
Whole work will be done by A in ---> x =16 * (3/2) days = 24 days.
Therefore, A's 1 days work = 1/24

B can do 1/4 of the same work in 3 days

Whole work will be done by B in --> x= 3 * 4 days = 12 days
Therefore, B's 1 days work = 1/12

(A+B)'s one days work = 1/24 + 1/12 = 3/24 = 1/8
Therefore, A and B working together can finish the work in 8 days.

(Question 11) A, B and C can do a piece of work in 15, 12 and 20 days respectively. They started the work together, but C left after 2 days. In how many days will the remaining work be completed by A and B?

Solution

A's one day's work = $\frac{1}{15}$

B's one day's work = $\frac{1}{12}$

C's one day's work = $\frac{1}{20}$

A,B and C's one day's work

$= \frac{1}{15} + \frac{1}{12} + \frac{1}{20}$

$= \frac{4+5+3}{60}$ (LCM of 15,12,20=60)

$= \frac{12}{60} = \frac{1}{5}$

A,B and C's 2 days work = $\frac{1}{5} \times 2 = \frac{2}{5}$

Remaining work = $1 - \frac{2}{5}$

$= \frac{5-2}{5} = \frac{3}{5}$ A and B's one days work = $\frac{1}{15} + \frac{1}{12}$

$= \frac{4+5}{60} = \frac{9}{60} = \frac{3}{20}$

∴ A and B will do the remaining work $\frac{3}{5}$in = $\frac{20}{3} \times \frac{3}{5} = 4$ days

(Question 12) A and B can do a piece of work in 18 days; B and C can do it in 24 days while C and A can finish it in 36 days. In how many days can A, B, C finish it, if they all work together?

Solution

Given: A and B's one day's work = $\frac{1}{18}$ .....(i)

B and C's one day's work = $\frac{1}{24}$ .....(ii)

C and A's one days work = $\frac{1}{36}$ .....(iii)

Adding above three equations, we get

$2(A + B + C)$'s one day's work = $\frac{1}{18} + \frac{1}{24} + \frac{1}{36}$

$= \frac{4 + 3 + 2}{72}$ {LCM 18, 24 and 36 = 72}

$= \frac{9}{72}$

$\therefore 2(A + B + C)$'s one day's work = $\frac{1}{8}$

Hence, A, B and C's one day work = $\frac{1}{8 \times 2} = \frac{1}{16}$

$\therefore$ A, B and C **can do the work in 16 days.**

Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 13 Exercise 13.1

- **Comprehensive Understanding**: The solutions provide detailed explanations and step-by-step guidance for each problem, helping students grasp the underlying concepts of Time and Work effectively.
- **Problem-Solving Skills**: By practicing these solutions students can enhance their ability to solve various types of time and work problems, improving their problem-solving skills and confidence.
- **Clarity of Concepts**: The solutions clarify complex concepts and formulas related to time and work, making it easier for students to understand and apply them in different scenarios.
- **Exam Preparation**: Regular practice with these solutions helps students become familiar with the types of questions that may appear in exams leading to better preparation and performance.
- **Error Correction**: The detailed solutions help students identify and correct their mistakes, fostering a better understanding of how to approach and solve similar problems in the future.
- **Time Management**: Through these solutions students learn to manage their time efficiently while solving problems, which is crucial for performing well in timed exams.